

#### ABSTRACT OF THE DISCLOSURE

A main magnetic pole core of a metallic soft magnetic multi-layer film is formed on a substrate via a non-magnetic insulation film, two detecting conductor films are made contact with both side faces of the main magnetic pole core respectively, and a high-frequency signal is applied across the two detecting conductor films. When a magnetic flux passing through the main magnetic pole core changes, its impedance changes, and this change is taken out as the change in the amplitude of the high-frequency signal. A pair of electrode terminals connected to both ends of the detecting conductor films respectively, a power source terminal and a ground terminal are formed on the substrate. A semiconductor bare chip used as a high-frequency amplifier is installed so as to be opposite to these terminals, whereby the terminals of the bare chip are directly connected to the electrode terminals, power source terminal and ground terminal.